



AD-UMD2N Digital Transistor (Built-In Resistors)

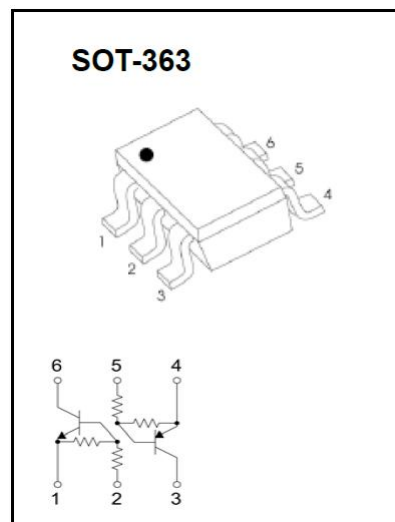
AD-UMD2N Dual digital transistor (NPN+PNP)

FEATURES

- AD-DTC124E and AD-DTA124E transistors are in a package
- Mounting possible with SOT-363 automatic mounting machines
- Transistor elements are independent, eliminating interference
- AEC-Q101 qualified

MARKING

$\bar{D}2$



MAXIMUM RATINGS NPN TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|----------------|-----------|------------------|
| Supply voltage | V_{CC} | 50 | V |
| Input voltage | V_{IN} | -10 ~ 40 | V |
| Output current | I_o | 30 | mA |
| Peak collector current | $I_{C(MAX)}$ | 100 | mA |
| Maximum power dissipation | P_D | 150 | mW |
| Operating junction and storage temperature range | T_j, T_{stg} | -55 ~ 150 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS NPN TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test condition | Min | Typ | Max | Unit |
|----------------------|--------------|---|------|-----|------|------------------|
| Input voltage | $V_{I(off)}$ | $V_{CC} = 5V, I_o = 100\mu\text{A}$ | 0.5 | - | - | V |
| | $V_{I(on)}$ | $V_o = 0.2V, I_o = 5\text{mA}$ | - | - | 3 | |
| Output voltage | $V_{O(on)}$ | $I_o/I_i = 10\text{mA}/0.5\text{mA}$ | - | 0.1 | 0.3 | V |
| Input current | I_i | $V_i = 5V$ | - | - | 0.36 | mA |
| Output current | $I_{O(off)}$ | $V_{CC} = 50V, V_i = 0V$ | - | - | 0.5 | μA |
| DC current gain | G_I | $V_o = 5V, I_o = 5\text{mA}$ | 56 | - | - | - |
| Input resistance | R_1 | - | 15.4 | 22 | 28.6 | $\text{k}\Omega$ |
| Resistance ratio | R_2/R_1 | - | 0.8 | 1 | 1.2 | - |
| Transition frequency | f_T | $V_{CE} = 10V, I_E = 5\text{mA}, f = 100\text{MHz}$ | - | 250 | - | MHz |

MAXIMUM RATINGS NPN TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|----------------|-----------|------------------|
| Supply voltage | V_{CC} | -50 | V |
| Input voltage | V_{IN} | -40 ~ 10 | V |
| Output current | I_o | -30 | mA |
| Peak collector current | $I_{C(MAX)}$ | -100 | mA |
| Maximum power dissipation | P_D | 150 | mW |
| Operating junction and storage temperature range | T_j, T_{stg} | -55 ~ 150 | $^\circ\text{C}$ |

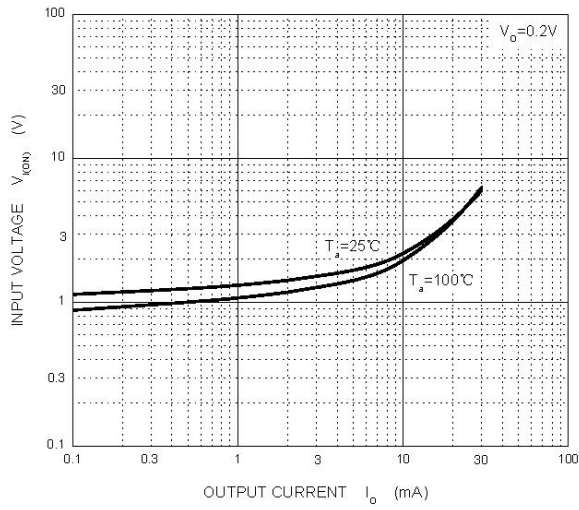
ELECTRICAL CHARACTERISTICS NPN TRANSISTOR ($T_j = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test condition | Min | Typ | Max | Unit |
|----------------------|--------------|---|------|-----|-------|------------------|
| Input voltage | $V_{I(off)}$ | $V_{CC} = -5V, I_o = -100\mu\text{A}$ | -0.5 | - | - | V |
| | $V_{I(on)}$ | $V_o = -0.3V, I_o = -5\text{mA}$ | - | - | -3 | |
| Output voltage | $V_{O(on)}$ | $I_o/I_i = -10\text{mA}/-0.5\text{mA}$ | - | - | -0.3 | V |
| Input current | I_i | $V_i = -5V$ | - | - | -0.36 | mA |
| Output current | $I_{O(off)}$ | $V_{CC} = -50V, V_i = 0V$ | - | - | -0.5 | μA |
| DC current gain | G_I | $V_o = -5V, I_o = -5\text{mA}$ | 56 | - | - | - |
| Input resistance | R_1 | - | 15.4 | 22 | 28.6 | $\text{k}\Omega$ |
| Resistance ratio | R_2/R_1 | - | 0.8 | 1 | 1.2 | - |
| Transition frequency | f_T | $V_{CE} = -10V, I_E = -5\text{mA}, f = 100\text{MHz}$ | - | 250 | - | MHz |

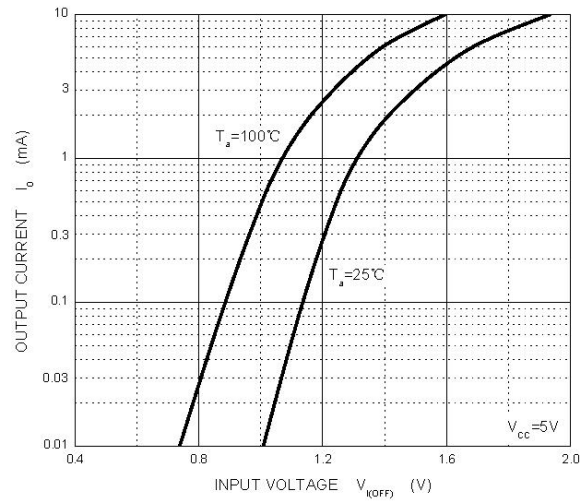
TYPICAL CHARACTERISTICS

AD-DTC124E

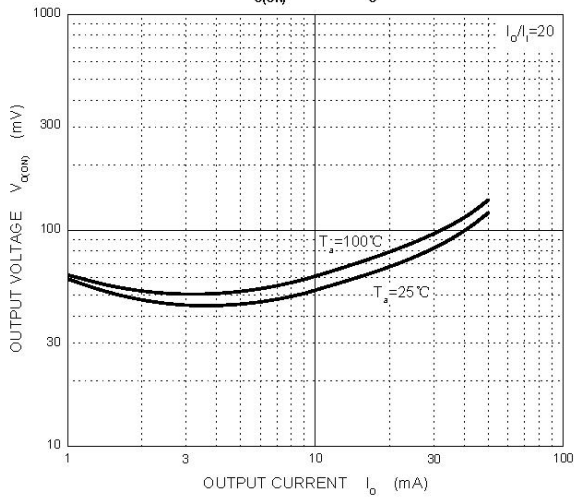
ON Characteristics



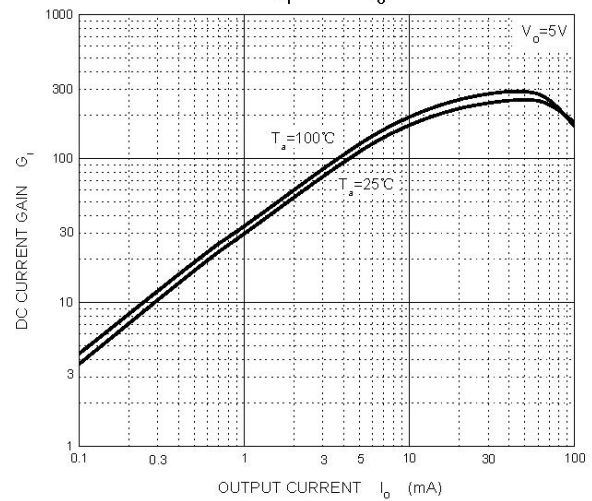
OFF Characteristics



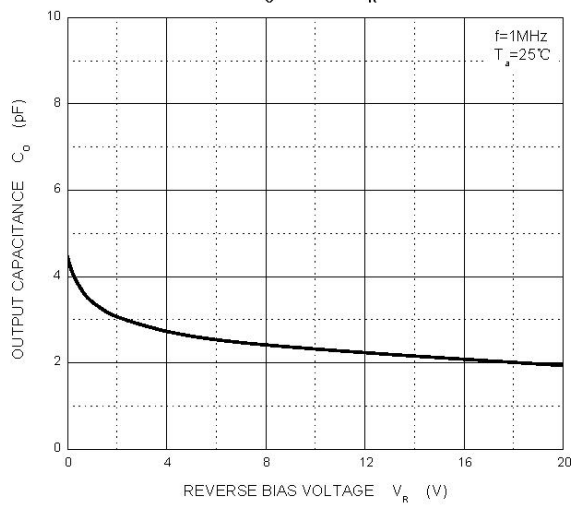
$V_{0(on)}$ — I_0



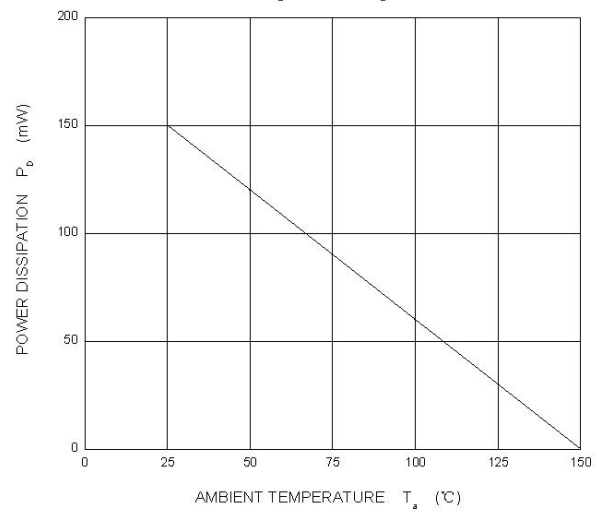
G_I — I_0



C_0 — V_R

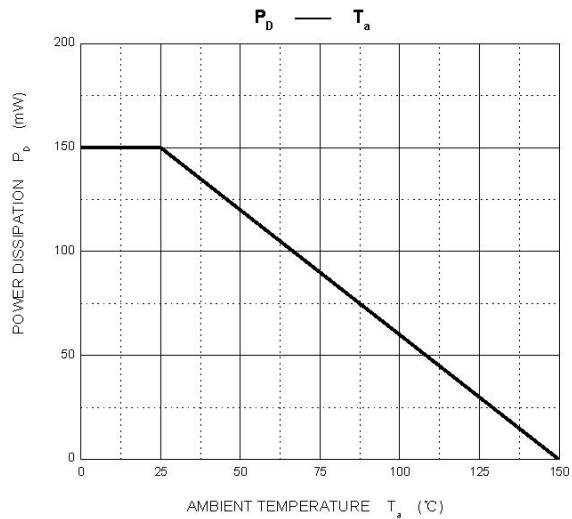
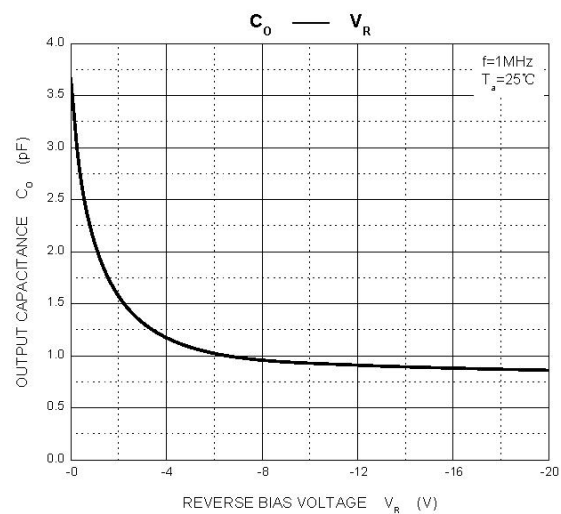
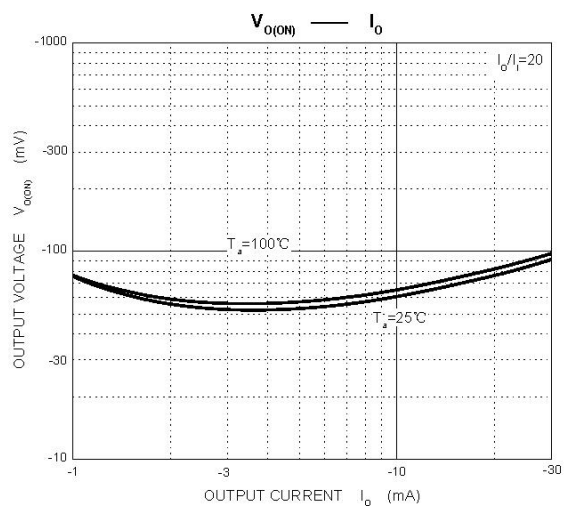
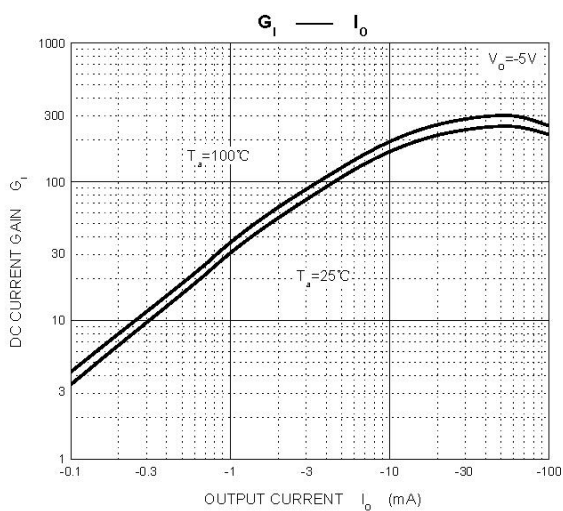
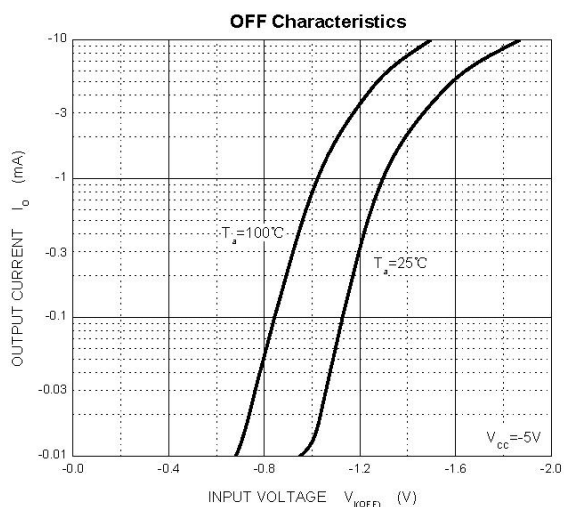
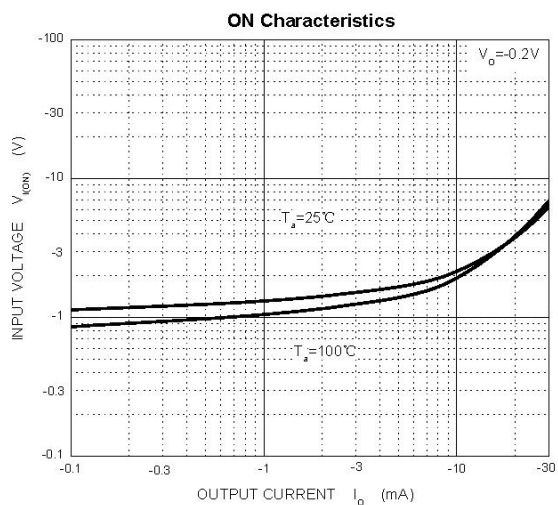


P_D — T_a

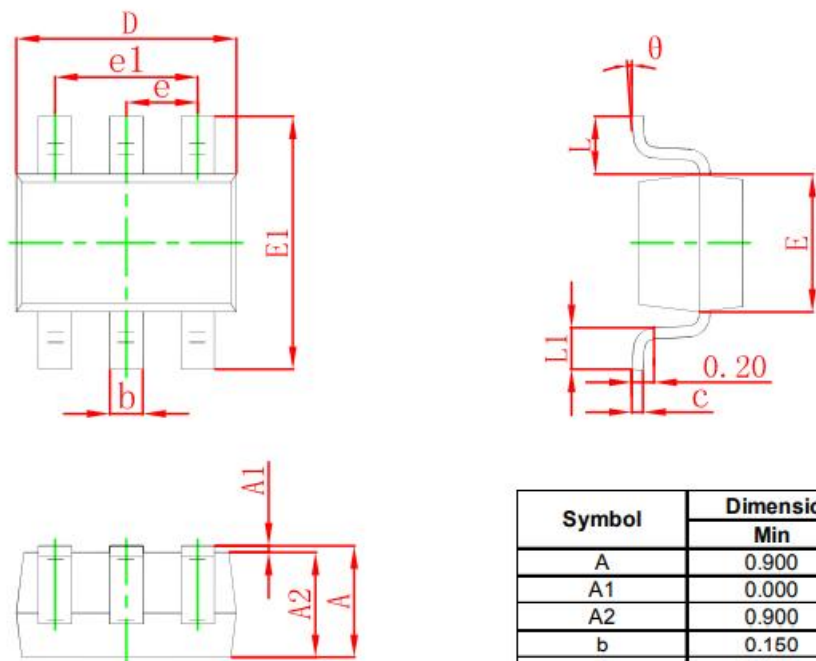


TYPICAL CHARACTERISTICS

AD-DTA124E

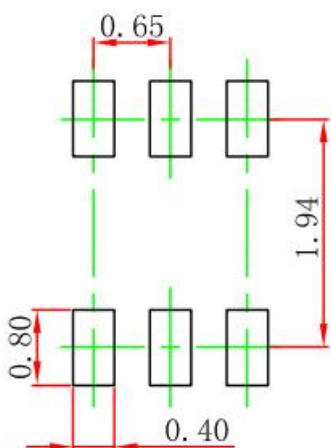


SOT-363 PACKAGE OUTLINE DIMENSIONS



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.000 | 0.035 | 0.039 |
| b | 0.150 | 0.350 | 0.006 | 0.014 |
| c | 0.100 | 0.150 | 0.004 | 0.006 |
| D | 2.000 | 2.200 | 0.079 | 0.087 |
| E | 1.150 | 1.350 | 0.045 | 0.053 |
| E1 | 2.150 | 2.400 | 0.085 | 0.094 |
| e | 0.650 TYP | | 0.026 TYP | |
| e1 | 1.200 | 1.400 | 0.047 | 0.055 |
| L | 0.525 REF | | 0.021 REF | |
| L1 | 0.260 | 0.460 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |

SOT-363 SUGGESTED PAD LAYOUT

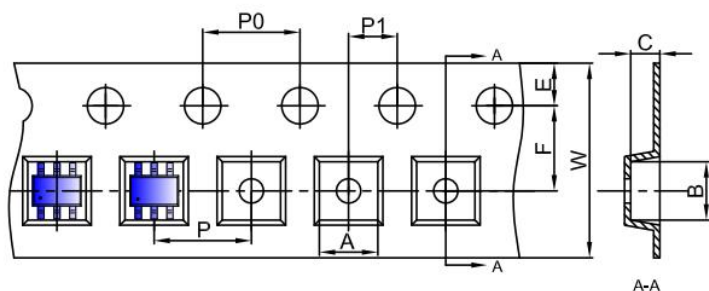


Note:

1. Controlling dimension in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purpose only.

SOT-363 TAPE AND REEL

SOT-363 Embossed Carrier Tape

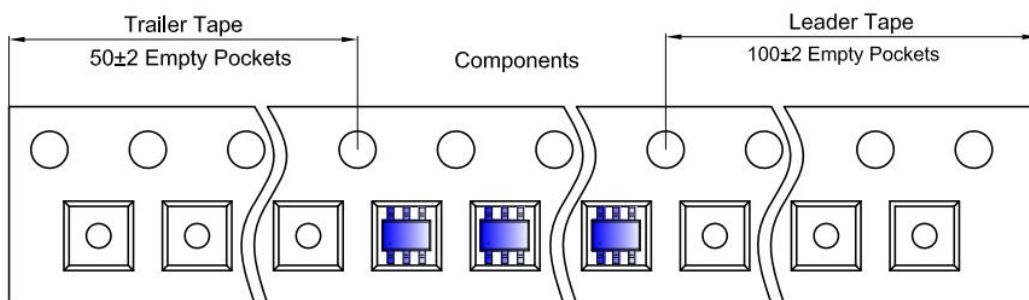


Packaging Description:

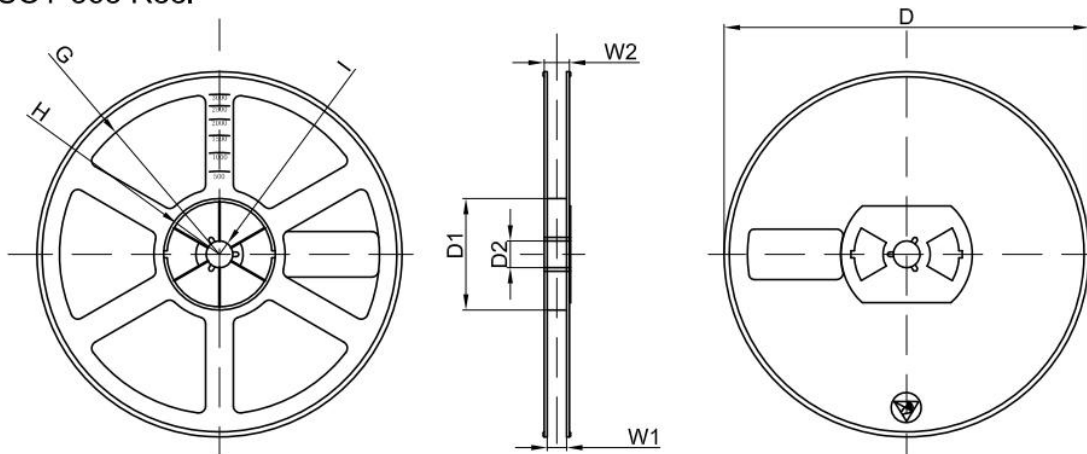
SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-363 | 2.25 | 2.55 | 1.20 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-363 Tape Leader and Trailer



SOT-363 Reel



| Dimensions are in millimeter | | | | | | | | |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 7" Dia | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3000 pcs | 7 inch | 45,000 pcs | 203×203×195 | 180,000 pcs | 438×438×220 | |

PUBLISHED BY**JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.**

13th Floor, C Block, Tengfei Building, Yan Chuang Yuan, Nanjing Jiangbei New Area, China

LEGAL DISCLAIMER

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples, hints or typical values stated herein and/or any information regarding the application of the device, JSCJ hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of JSCJ in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

INFORMATION

For further information on technology, delivery terms and conditions as well as prices, please contact your nearest JSCJ office (www.jscj-elec.com).

WARNINGS

Due to technical requirements, products may contain dangerous substances. For information on the types in question, please contact your nearest JSCJ office.

Except as otherwise explicitly approved by JSCJ in a written document signed by authorized representatives of JSCJ, JSCJ's products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.